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CHAPTER 11

DESIGN FEEDBACK

11.1 GENERAL

The purpose of design review is to determine if the design is accomplishing its intended objectives and to provide an input process for improving project development and design procedures. This Chapter discusses the methods, guidance and general procedures for post design review. The process can be described as a means of obtaining feedback for the purpose of evaluating the effectiveness of the project development and design processes through the following:

- PS&E reviews,
- analysis of construction changes,
- post construction reviews,
- PS&E improvement meetings, and
- periodic program reviews.

Although an effective and efficient design is sought for each project, the proposed design may not always be the ideal solution. Conducting reviews and analyzing feedback data are methods that will be useful in substantiating that current processes are adequate and assist in determining if changes are necessary. The feedback systems may range from informal communications to formal review and reporting procedures.

11.2 GUIDANCE AND REFERENCES

Most of the available guidance is concerned with reviews to be undertaken and the types of reporting formats. Sections 11.2.1, [11.2.2](#) and [11.2.3](#) provide brief descriptions of manuals that are available in each Division Office and are to be reviewed for specific guidance.

11.2.1 [Federal-Aid Policy Guide \(FAPG\)](#)

Although developed mainly for the Federal-Aid Program, the *Manual* contains many regulatory and non -regulatory applications to the FLH Program.

1. **FAPG G6011.9, Value Engineering.** This section discusses policy relating to value engineering in design and construction and the review of designs and standards.
2. **FAPG G6021.2, Monitoring of Federal-Aid Highway Design Projects.** This section discusses different types of reviews that aid in evaluating the effectiveness of current design policy and detecting design features that can be improved.
3. **FAPG 23 CFR 630B, Plans, Specifications and Estimates.** Paragraph 5C in the non-regulatory attachment, NS 23 CFR 630B, discusses the transformation of developmental specifications to Standard Specifications after gaining adequate and satisfactory experience from active contracts.
4. **FAPG G6042.4, Construction Projects Incorporating Experimental Features.** This section provides guidelines relating to inspection, reporting and evaluating experimental features included in construction projects.

11.2.2 *Federal Lands Highway Manual (FLHM)*

This *Manual*, issued by FLHO, contains the policies and procedures applicable to the FLH Program.

1. **FLHM 1-C-1, Management Reviews.** This section sets forth general guidance for carrying out a management review program that includes internal reviews of Division Office operations and procedures.
2. **FLHM 1-C-2, Work Method Improvements-Alternate Work Methods.** This section establishes policy for the Divisions to continuously search for methods to improve the effectiveness of performing the work by analyzing and scrutinizing existing methods, policies and procedures.
3. **FLHM 3-C-2, Exceptions to Minimum Engineering Standards - Risk Factors.** This section sets forth policy for adequate review, evaluation and documentation of engineering standards and exceptions to standards.
4. **FLHM 4-A-3, Construction Claims and Disputes.** This section sets forth policy aimed at reducing claims by requiring a routine analysis of claims as they are settled. It also

provides emphasis and direction toward improving operational procedures that deal with construction claims.

11.2.3 FHWA Construction Manual

This *Manual*, prepared by FLHO includes procedures for processing plan and specification changes and the requirements for final construction reports and as-constructed plans. These reports and plans are important sources of design feedback information.

11.3 FEEDBACK PROCEDURES

This Section provides general guidance and suggested methods for conducting design review. In addition to some of the more formalized written procedures, a great deal of information is gained through informal contacts and communications. This is true both within FHWA and with the client and cooperating agencies. Principal sources for this information are PS&E reviews and data obtained from tracking construction projects.

11.3.1 PS&E Review and Improvement Processes

Policy established in FLHM 1-C-2 requires that methods be established to provide improvements to existing methods, policies and procedures.

1. **PS&E Improvement Meetings.** These may be held to evaluate design features, policies, specifications or other items relating to PS&E development.
2. **Project PS&E Reviews.** These may involve both written comments and meetings held to resolve comments received in the review process. Items pertinent to other projects should also be distributed to others.

11.3.2 Active Construction Projects

There are a number of methods used to provide feedback information during construction. These involve a great deal of informal communications as well as specific reviews and reports. The following list identifies some of the more common sources of this information:

- partnering meetings;
- contract modifications;
- value engineering proposals;
- trip reports from construction staff reviews;
- field reviews of proposed design changes for problems (e.g., slides, drainage, materials sources);
- environmental compliance reviews (see [Chapter 3](#));
- formal program management reviews; these may be general in nature or cover specific emphasis areas (e.g., hydraulics, safety);
- informal contacts or field reviews with project personnel; designers should be encouraged to visit the site of active construction projects when they are in the vicinity;
- construction feedback report (see [Form 11.3-A](#) for sample report format);
- videotapes, photographs, etc;

FEEDBACK REPORT

To: _____

From: _____

Date: _____

Instructions:

1. One problem per report.
2. May be completed in pencil or ink.
3. Forward original and 1 copy to Division office.
4. Retain a copy for your records.

Project Name: _____

Type of Contract: _____
(Grading, Base, Paving, Bridge, etc.)

List any problems encountered in the plans, specifications or administration of your contract, any problem associated with Division support services or any deficiencies where correction action or improvements can be incorporated into upcoming projects. Timely submission is essential for implementation of corrective actions.

Problem: _____

(attach additional pages if more space is needed)

Corrective Action Taken and Improvements Recommended for Future Projects: _____

Division Staff Comments: _____

Action Recommended and by Whom: _____

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Form 11.3-A SAMPLE FEEDBACK REPORT

- contacts with owner/maintaining agencies;
- final inspections;
- contractor interviews; and
- work-zone traffic control reviews.

11.3.3 Post Construction

The following are some of the sources of information available for after the completion of construction projects that will be of value in evaluating the effectiveness and adequacy of design features:

- evaluation of contractor claims;
- feedback from owner/maintaining agency; this information may be gained from informal contacts or specific reviews of problems or deficiencies;
- formal post-construction reviews; these reviews provide an excellent means for evaluating the effectiveness of various design features; reviews should encompass maintenance, traffic operations, safety, drainage, erosion control and roadway performance;
- skid testing;
- as-constructed plans;
- final construction reports;
- closeout meetings with the construction project engineer; these meetings can be an excellent means for obtaining suggestions and recommendations for improvement of future designs; and
- Bridge Inspection Reports and Roadway Inventory Reports.

11.4 MONITORING

Each Division Office must have procedures to monitor their project development processes, including integrated feedback systems. The purposes of this monitoring are as follows:

- to assure management that the processes being used are in compliance with applicable regulations;
- to identify areas for needed improvements (i.e., technical and procedural); and
- to sustain efficient, safe and cost-effective designs.

Monitoring will provide appropriate and timely input for revisions and/or modifications to the following:

- *Federal Lands Highway Manual,*
- *Project Development and Design Manual,*
- *Standard Specifications,*
- Standard Plans, and
- Division Standard Operating Procedures.

FLHO is responsible for modifying or revising the above-listed items. Although accountable to FLHO, each Division Office is responsible for its own standard operating procedures. Significant items identified through design review will be considered for nationwide use. Copies of these items must be furnished to FLHO and the other FLH Divisions. After appropriate reviews, ideas found to have merit will be adopted. FLHO will coordinate these reviews and issue the appropriate revisions. However, in the interim prior to national adoption and distribution, divisions should implement the changes on an as-needed basis.

11.5 (RESERVED)

11.6 (RESERVED)

11.7 DIVISION PROCEDURES

Reserved for Federal Lands Highway Division office use in supplementing the policy and guidelines set forth is this Chapter with appropriate procedures and direction.

11.7.1 EFLHD Procedures

11.7.2 CFLHD Procedures

11.7.3 WFLHD Procedures